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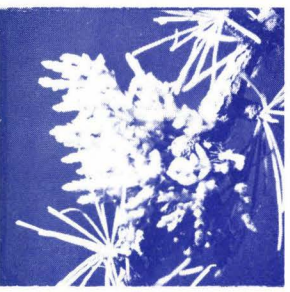

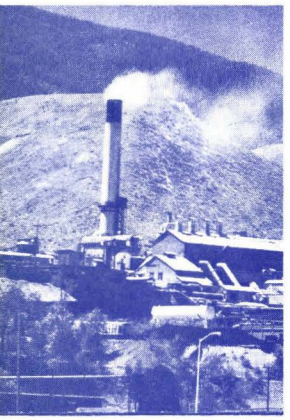

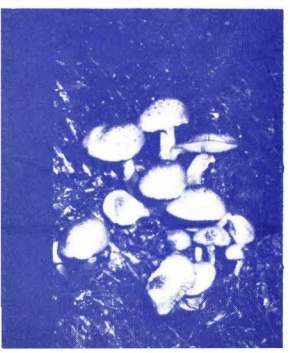

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EVALUATION OF PROPOSED DWARF MISTLETOE MANAGEMENT PROJECTS ON THE SULA RANGER DISTRICT, BITTERROOT NATIONAL FOREST

By

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SUMMARY

Residual Douglas-fir in older clearcuts are dwarf mistletoe-infected and pose a threat to regeneration present. Removal of these residuals coupled with planned or completed precommercial thinnings will effectively reduce dwarf mistletoe to an insignificant level and increase future volume yields. The benefit/cost ratio based on timber values alone is negative, but other benefits outweigh the economic ones. Dwarf mistletoe management is recommended.

INTRODUCTION

The Sula Ranger District has proposed the removal of dwarf mistletoe-infected Douglas-fir overstory from 146 acres to protect regeneration from infection. I evaluated these areas on May 12, 1978.

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TECHNICAL INFORMATION

Causal agent.--Douglas-fir dwarf mistletoe, Arceuthobium douglasii Engelm.
Host.--Douglas-fir, Pseudotsuga menziesii (Mirb.) Franco.
Type of damage.--Reduction of tree vigor, height and diameter growth, and some mortality.

DESCRIPTION OF AREAS AND PROPOSED TREATMENT

Location of the proposed areas is shown in figure 1.

Proposed treatment is to remove residual dwarf mistletoe-infected Douglas-fir overstory trees from cutover stands with advanced reproduction. Average number of overstory trees is 10/acre. Specific areas to be covered by the project are:

Stand number	Acres
(Indian Tree)	
13.9-01	9
13.9-03	10
13.9-04	42
13.9-05	30
(Waugh Gulch)	
13.1-01	55
Total	146

FIDM targets for the project are shown in figure 2.

DISCUSSION

Dwarf mistletoe is responsible for the most serious disease losses in the Douglas-fir forests of western Montana. Growth losses of 50 percent or more are common. Dwarf mistletoe not only causes growth loss and direct mortality, but also predisposes trees and entire stands to attack by other disease organisms and insects.

Removal of infected overstory trees removes the dwarf mistletoe seed source, and the young stand remains essentially free of infection throughout the rotation.

BENEFIT/COST ANALYSIS

Yield projections on the Bitterroot National Forest for one precommercial and one commercial thinning show the following volumes:

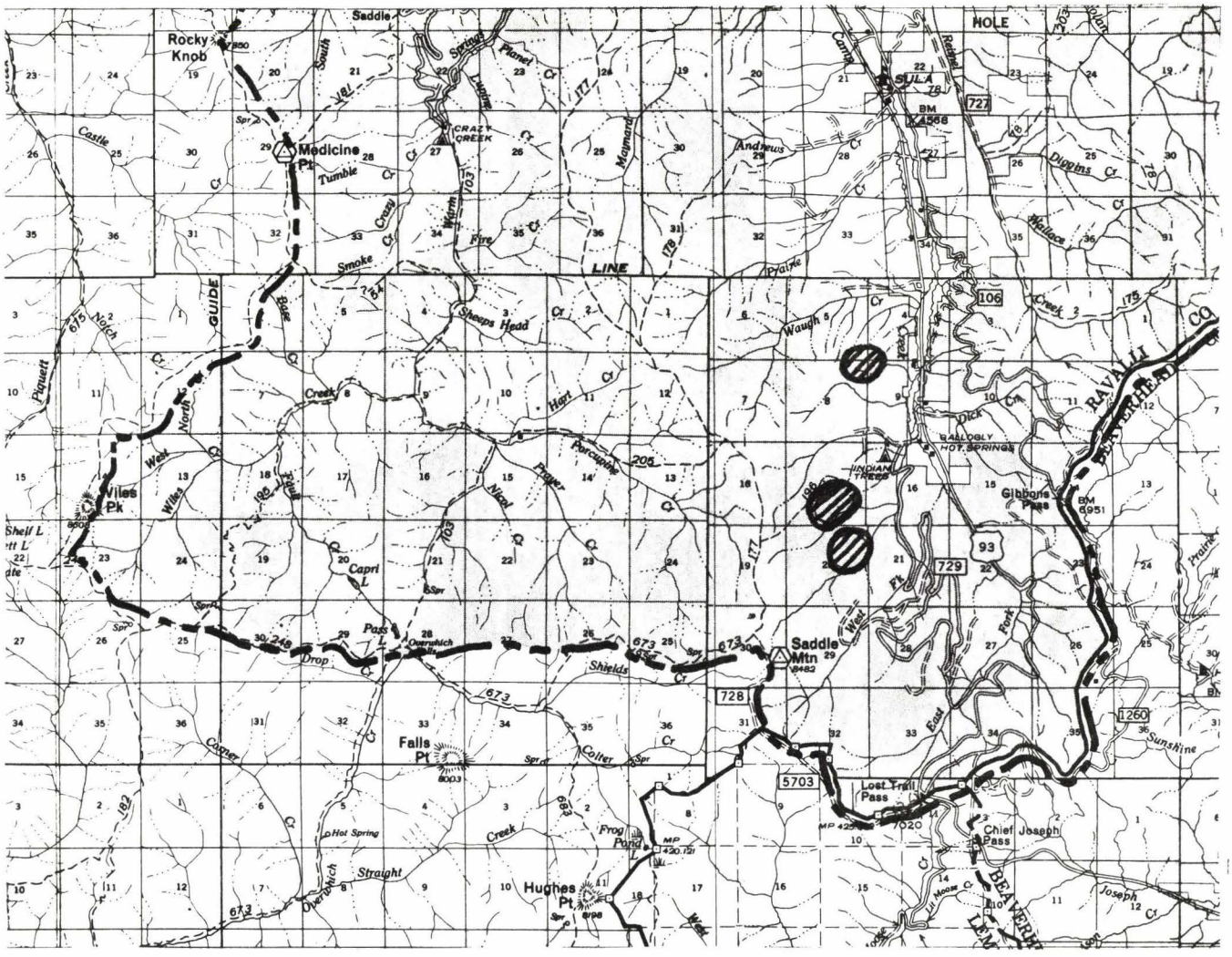

Figure 1.--Location of dwarf mistletoe control areas on the Sula Ranger District.

Control areas.

FIDM TARGETS

FOR THE Sula Dwarf Mistletoe SUPPRESSION PROJECT
(Name of Project)

	Acres (in M)	Vol. Protected (in MCF)	Vol. Removed (in MCF)
I&D Presuppression-Operational Survey		XXXXXXXXXXXXXX	XXXXXXXXXXXX
I&D Prevention/Suppression Using Biological Methods			
I&D Prevention/Suppression Using Chemical Methods			
I&D Prevention/Suppression Using Silviculture/Mechanical Methods. . .	0.146	903	-
Total	0.146	903	-

Figure 2.-- FIDM targets for Sula dwarf mistletoe control area.

Cutting age	Volume recovery (MBF)	Value per MBF a/	Total recovery value ($)
20	-	-	-
90	4	12	48
120	30	12	360
Totals	34		408

a/ Current net stumpage value on the Bitterroot National Forest.

By applying a 10 percent discount rate to these values, the present net worth (pnw) of dwarf mistletoe control is:

Time (n)	Dollar value	Discount factor a/	pnw ($)
70	48	0.0013	0.06
100	360	0.00007	0.03
Totals	408		0.09

a/ Present value of $1.00 for n years @ 10%.

By applying a 6 percent discount rate to these values, the pnw of dwarf mistletoe control is:

Time (n)	Dollar value	Discount factor a/	pnw ($)
70	48	0.0169	0.81
100	360	0.0029	1.04
Totals	408		1.85

a/ Present value of $1.00 for n years @ 6%.

Cost of treatment will be $31.93 per acre. By dividing the pnw of the benefits by the treatment costs, the benefit/cost ratios are:

10 percent discount, 0.0028/1; and
6 percent discount, 0.058/1;
(both negative ratios.)

These calculations assume that the value of stumpage will remain at present levels for 70 and 100 years. This is probably false; stumpage prices will continue to rise, the benefits will be greater, and the benefit/cost ratio may become positive.

There will also be value added to the economy. Each million board feet of timber cut creates 7 person-years of employment paying an average of $13,400 per year. This will generate 0.04 and 0.30 years of employment in 70 and 100 years respectively, and add $4,556 to the economy.

Another benefit not directly related to pnw in dollars is the reduction in dwarf mistletoe infection at each stand entry. By the end of the first rotation, each area should be essentially dwarf mistletoe-free and should remain so for many rotations.

RECOMMENDATIONS

Decision for control.--Dwarf mistletoe management is biologically sound and should be done.

Control method.--Removal of dwarf mistletoe-infected overstory trees from cutover stands with advanced regeneration is the method selected for management.

Impact of control on other resources.--Because management of dwarf mistletoe will be by removal of residuals from areas already clearcut, there will be no additional adverse impact on other resources. Environmental Analysis Reports are being written and will be on file at the Sula Ranger District office in Sula, Montana.